

## **Sustainable Design - Explanation:**

Sustainable Design (SD) is an overall environmental idea, like Sustainability, but applied to building and construction activities.

Sustainable Design can encompass organic lawn care, native landscaping, road-building, location selection, proximity to suppliers, accessibility of alternative transportation, and much more.

Sustainability is an overall concept that must be understood for all other environmental concepts to make sense. Sustainability means you keep in mind, whenever you build, buy, dispose – take any action – that if everyone in the world performed this action on an ongoing basis, would it use up any resource faster than it can be replaced. A non-Sustainable activity would be logging forests faster than forests can grow new trees to replace them, in order to make newspapers.

Next you apply the idea of Sustainability to actual actions through projects. Life Cycle Analysis is the functional tool you use to accomplish this. You consider all impacts of your actions from “cradle-to-grave;” that is, from pulling the raw material from the earth to disposing of it. In the logging/newspaper example, you’d consider the forests, logging runoff to streams, pollution of logging vehicles, erosion, effects on forest animals, disposal of protective gloves, etc. Also, Life Cycle considers cradle-to-grave of, not just extraction of raw material, but manufacturing of the product, use of the product, and disposal of the product.

This “overall impact” concept of Life Cycle Analysis is then expanded to constructing buildings and landscaping, even building a city. In this case, you also include the planning and engineering process, getting all stakeholders involved up front. At this point, the concept name is changed from merely Life Cycle to Sustainable Design. Sustainable Design will include the type of energy used in the building, considering the local climate in roofing and landscaping, working with natural forces available and using them, such as natural light, and enhancing worker health and satisfaction. You will also consider the impacts, biodegradability, reuse, etc., of tearing down the facility.

Here is a link to NASA Headquarters’ Facility Sustainable Design Policy:

[http://nodis3.gsfc.nasa.gov/library/displayDir.cfm?Internal\\_ID=N\\_PD\\_8820\\_0003\\_&page\\_name=main](http://nodis3.gsfc.nasa.gov/library/displayDir.cfm?Internal_ID=N_PD_8820_0003_&page_name=main)